

REMARKS

This application has been carefully reviewed in light of the Office Action dated December 22, 2004. Claims 1 to 66 are pending in the application, of which Claims 1 and 66 are independent. Reconsideration and further examination are respectfully requested.

As an initial matter, the Examiner approved the replacement drawings submitted with the September 10, 2004 Amendment with the exception of a missing label in Fig. 39. The corrected replacement sheet for Fig. 39 is submitted with the accompanying Letter Transmitting Replacement Sheet.

Furthermore, Applicant acknowledges that English language translations of the abstracts for Japanese document numbers 2717662, 2941847 and 2763296 were not included in the Supplemental Information Disclosure Statement of September 7, 2004. However, Applicant submits that an English abstract was included for Japanese document number 2879670.

Applicant requests that the Examiner reconsider the Supplemental Information Disclosure Statement. If the Examiner is still unable to locate the English language abstract for Japanese document number 2879670, Applicant respectfully requests the Examiner to contact Applicant's representative directly as indicated below in order to secure an addition copy of the abstract.

Claims 1 to 15, 19 to 24 and 66 were rejected under 35 U.S.C. § 103(a) over U.S. Patent No. 5,058,184 (Fukushima) in view of "Information Processing in Biology-Inspired Pulse Coded Neural Networks" (Eckmiller) in view of U.S. Patent No. 5,664,065 (Johnson), and in further view of U.S. Patent No. 6,088,490 (Iwata). Claims 16 to 18, 25 to 36 and 41 to 44 were rejected to under 35 U.S.C. § 103(a) over Fukushima in view of Eckmiller in view of Johnson in view of Iwata, and in further view of U.S. Patent No. 6,178,207 (Richards). Claims 37, 38 and 40 were rejected under 35 U.S.C. § 103(a) over Fukushima in view of Eckmiller in view of

Johnson, in further view of Iwata, in further view of Richards, and in further view of U.S. Patent No. 5,631,469 (Carrieri). Claims 39 and 45 to 47 were rejected under 35 U.S.C. § 103(a) over Fukushima in view of Eckmiller in view of Johnson, in further view of Iwata, in further view of Richards, in further view of Carrieri, and in further view of U.S. Patent No. 6,081,660 (Macleod). Claims 48 to 50 and 54 to 65 were rejected under 35 U.S.C. § 103(a) over Fukushima in view of Eckmiller in view of Johnson in view of Iwata in view of Richards, and in further view of “The Implementation of a Multi-View Autostereoscopic Display” (Moore). Claims 51 to 53 were rejected under 35 U.S.C. § 103(a) over Fukushima in view of Eckmiller in view of Johnson, in further view of Iwata in view of Richards in view of U.S. Patent No. 4,577,344 (Warren), and in further view of Moore.

Turning to specific claim language, amended independent Claim 1 is directed to a pattern detecting apparatus which includes: input unit configured to input a pattern; and pattern detection unit that comprises a plurality of signal processing elements and performs detection related to a plurality of predetermined features on a pattern input by the input unit so as to detect a predetermined pattern included in the input pattern. Each of the plurality of signal processing elements outputs a pulse signal to another signal processing element or outside in response to an input from the input unit or another signal processing element, and each of predetermined ones among the plurality of signal processing elements a pulse signal with an output value corresponding to an arrival time pattern of a plurality of pulse signals input in a predetermined order and respective intervals through a single line from a plurality of signal processing elements within a predetermined time range.

As currently amended, Claim 1 includes the feature that each of predetermined ones among the plurality of signal processing elements outputs a pulse signal with an output

value corresponding to an arrival time pattern of a plurality of pulse signals input in a predetermined order and respective intervals through a single line from a plurality of signal processing elements within a predetermined time range.

In contrast, Fukushima is directed to a hierarchical information processing system in which afferent signal paths extend upwards from lower order stages on a pattern input side to higher order stages on the recognition output side and efferent signal paths extend downwards from higher order stages to lower order stages. In this way, input information supplied to the lower order stages is successively transmitted to the higher order stages through the afferent signal paths and an output derived from the higher order stages can be fed-back to the lower order stages through the efferent signal paths. Once an output response has been derived from the higher order stages, the afferent signal paths contribute to cause the output response in the higher order stages and the information processing processes to be influenced by an excitatory effect, meanwhile the remaining efferent signal paths and the information processing processes are affected by an inhibitory effect. (Column 2, line 43 to column 3, line 2.) Nowhere does Fukushima disclose that processing within Fukushima's hierarchical information processing system is based on an arrival time pattern of a plurality of pulse signals. Specifically, Fukushima fails to disclose or suggest Applicant's use of predetermined ones among the plurality of signal processing elements outputs a pulse signal with an output value corresponding to an arrival time pattern of a plurality of pulse signals input in a predetermined order and respective intervals through a single line from a plurality of signal processing elements within a predetermined time range.

Furthermore, Eckmiller discloses a biology-inspired pulse processing neural network (BPN). Each neuron of BPN sums up and filters received pulses and generates a pulse

train as an output if the filtered value reaches a threshold. (Eckmiller, Fig.1) Eckmiller discloses that a plurality of such neurons may be used to detect a single pulse sequence. (Eckmiller, Fig. 2). However, Eckmiller is silent regarding the feature of signal processing elements outputting a pulse signal with an output value corresponding to an arrival time pattern of a plurality of pulse signals input in a predetermined order and respective intervals through a single line from a plurality of signal processing elements within a predetermined time range.

Johnson allegedly discloses an electro-optical pulse-coupled neural network used to generate pulse patterns from optical images of cluttered input scenes. The pulse patterns correspond to pre-selected objects and are used selectively to open a time gate thereby transmitting light only when the pre-selected objects are present in the scene. (Column 2, lines 49 to 59.) However, Johnson fails to disclose that these pulse patterns are used in higher level processing. Instead, the pulse patterns are used as the final output of the neural network and used to drive a display viewed by a user. The user must then provide high level processing to further discriminate whether or not the output from the neural network is useful. Specifically, Johnson fails to disclose or suggest Applicant's use of a predetermined ones among the plurality of signal processing elements outputs a pulse signal with an output value corresponding to an arrival time pattern of a plurality of pulse signals input in a predetermined order and respective intervals through a single line from a plurality of signal processing elements within a predetermined time range.

Therefore, Fukushima fails to disclose Applicant's pattern detecting apparatus as claimed in amended independent Claim 1. Specifically, Fukushima fails to disclose a pattern detecting apparatus having at least the feature of predetermined signal processing elements outputting a pulse signal with an output value corresponding to an arrival time pattern of a

plurality of pulse signals input in a predetermined order and respective intervals through a single line from a plurality of signal processing elements within a predetermined time range. As Eckmiller and Johnson are not seen to disclose this feature either, the combination of Fukushima, Eckmiller and Johnson cannot be said to disclose or suggest Applicant's invention as claimed in amended independent Claim 1.

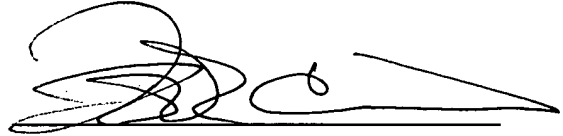
In view of the foregoing deficiencies of the applied art, Applicant submits amended independent Claim 1 is in condition for allowance and respectfully requests same. Amended independent Claim 66 is a computer-implemented method substantially in accordance with the apparatus of amended Claim 1. Applicant submits that the discussion from above in regard to Claim 1 is equally applicable to Claim 66. Therefore, Applicant believes Claim 66 is also in condition for allowance and respectfully requests same.

The other pending claims in this application are each dependent from independent Claim 1 discussed above and are therefore believed allowable for at least the same reasons. Because each dependent claim is also deemed to define an additional aspect of the invention, however, individual consideration of each dependent claim on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, the entire application is believed to be in condition for allowance, and such action is respectfully requested at the Examiner's earliest convenience.

Applicant's undersigned attorney may be reached in our Costa Mesa, CA office at
(714) 540-8700. All correspondence should continue to be directed to our below-listed address.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Frank L. Cire', written over a horizontal line.

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